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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Charles R. Broadus

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11/16/2006

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EXAMINER

HOYE, MICHAEL W

ART UNIT

PAPER NUMBER

2623

DATE MAILED: 11/16/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.		Applicant(s)	
	09/917,275		BROADUS ET AL.	
	Examiner		Art Unit	
	Michael W. Hoyer		2623	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 August 2006.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 8-14, 28-40, 47-50, 52, 54, 56 and 58 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7, 15-27, 41-46, 51, 53, 55 and 57 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 July 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>1/30/06</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

As a preliminary note, the issuer of the previous office action, Vivek Srivastava, is no longer the Examiner of record for this application.

Election/Restrictions

1. Applicants' election without traverse of the claims identified as Group I (claims 1-7, 15-27, 41-46, 51, 53, 55 and 57) in the reply filed on August 28, 2006 is acknowledged.

Response to Arguments

2. Applicants' arguments with respect to claims 1-58 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 4-6, 15-16 and 18-20 are rejected under 35 U.S.C. 102(e) as being anticipated by DeWeese et al (US 2005/0262542 A1), cited by the Examiner.

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As to claim 1, note the DeWeese et al reference which discloses the claimed set top box for an interactive television system as met by set-top box 26 (Fig. 1A), 228 (Fig. 10) and/or 252 (Fig. 12). The claimed set top box configured to provide two-way videoconferencing communication using the interactive television system between a near-end user and a far-end user is met by the system of DeWeese which further supports real-time communications between users of the set-top boxes where the system may be implemented using audio and video conferencing equipment (see ¶'s [0058]-[0060], [109], [0116] and [0149]). The claimed set top box comprising a processor is met by each set top box 26 preferably contains a processor... (see ¶ [0060]). The claimed wireless receiver coupled to the processor for communicating with a remote control is met by the set top box which receives wireless signals from a remote control, where the set top box inherently has a wireless receiver coupled to the processor in order to receive and process the wireless signals (see ¶'s [0067] and [0116], also see Figs. 1A, 1B and 25). The claimed interface coupled to the processor for communicating with the far-end user is met by the communication paths 24 (Fig. 1A) and 224 (Fig. 1) as connected to set-top boxes 26 and 228 respectively (see ¶'s [0055]-[0056], [0102] and [0104]). The claimed noise cancellation module coupled to the wireless receiver and to the interface and having: a first input to receive TV audio output including TV audio and far-end user speech; a second input coupled to the receiver to receive input sound; and an adaptive filter to remove the TV audio output from the input sound based on an estimate of received TV audio output is met by the user television equipment device 226 as shown in Fig. 10, which includes a set-top box 228 and communication lines 224, as described above, microphone 232, television 230, speaker 234 (see Fig. 10 and ¶'s [0102]-[0111]), where audio from the current TV program and far-end user speech is received,

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microphone 232 receives input sound, and an adaptive filter removes, cancels out or subtracts the audio from the current TV program so that the recipient does not hear the TV program audio along with the sender's audio. The claimed camera coupled to the processor and the interface to convey video to the far-end user is met by video camera 256 as shown in Fig. 12 (see ¶'s [0109]-[0111]). The claimed memory coupled to the processor is met by memory 25 (Fig. 1A), the memory included communication instructions for establishing two-way communication with the far-end user via the interactive television system is met by the processor and memory as described above (see ¶'s [0055]-[0060]).

As to claim 2, the claimed "set top box of claim 1, wherein the adaptive filter comprises adaptive filter program code resident in the memory" is met by the inherent code or executable processes for carrying out the adaptive filter techniques as described above in claim 1 with regards to the DeWeese et al. reference (see ¶ [0102]).

As to claim 4, the claimed "set top box of claim 1, wherein the adaptive filter comprises analog components coupled to the wireless receiver and to the interface" is met by paragraph [0056] of DeWeese et al which teaches that, "multiple television and audio channels (analog, digital, or both analog and digital) may be provided to set-top boxes 26..." Therefore, analog components, or both analog and digital components, are inherent to the processing of analog signals.

As to claim 5, the claimed "set top box of claim 1, wherein the set top box further comprises a microphone configured to capture the input sound" is met by microphone 232 as shown in Fig. 10 and as previously described above in claim 1.

As to claim 6, the claimed “set top box of claim 1, wherein the set top box is coupled to an output device for generating audible output” is met by speaker 234 as shown in Fig. 10 and as previously described above in claim 1.

As to claim 15, see the rejection above regarding similar claim 1. Also note that the remote control and/or wireless keyboard 34 may transmit wireless signals to the set-top box as described above (see ¶’s [0067] and [0116], also see Figs. 1A, 1B and 25)

As to claims 16 and 18-20, see the above rejections to similar claims 2 and 4-6.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 3, 7, 17 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeWeese et al (US 2005/0262542 A1), in view of Hughes (USPN 6,931,123), previously cited by the Examiner.

Regarding claim 3, DeWeese discloses a “processor” as described above in claim 1 (see ¶ [0060] of DeWeese for example). More specifically, the claimed “set top box of claim 1, wherein the adaptive filter comprises a digital signal processor [(DSP)] coupled to the wireless receiver and to the interface with adaptive filter instructions”, is not explicitly met by the DeWeese et al reference. However, Hughes teaches using a DSP for the advantage of performing a fast adaptation algorithm [col. 3, lines 1-10]. Therefore, it would have been

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obvious to one of ordinary skill in the art at the time of the invention to have used a “DSP” for use in the noise cancellation module, since DSP’s are well known to those of ordinary skill in the art for use in audio processing, and more specifically in the art of echo cancellation and other types of audio cancellation, and furthermore, because echo cancellation is a mature technology, and widely used in telecommunications—loud-speaking telephones, teleconference systems, network echo control, and data transmission [col. 2, lines 15-18].

As to claim 7, DeWeese discloses a “noise cancellation module” as described above in claim 1 (see ¶ [0102] of DeWeese for example). More specifically, the claimed “set top box of claim 1 further comprising a training module coupled to the noise cancellation module and to the wireless receiver for training the adaptive filter to improve the estimate of received TV audio output” is not explicitly disclosed by DeWeese. However, the Hughes reference specifically teaches a $h(t)$ adaptive function for driving $e(t)$ towards zero and adapting to the input signal using algorithms such as LMS, RLS, or AP [col. 2, lines 2-14].

As to claims 17 and 21, see the above rejections to similar claims 3 and 7.

7. Claims 22-27, 41-45, 51, 53, 55 and 57 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeWeese et al (US 2005/0262542 A1), in view of August et al (USPN 5,671,267), previously cited by the Examiner.

Regarding claim 22, the DeWeese et al reference discloses the claimed “system of claim 15” including a “remote control” as described above. DeWeese also discloses a “two-way interactive display remote control device as shown in Fig. 25 (see ¶’s [0151]-[0152]), and the use of audio and video conferencing equipment (see ¶’s [0058] and [0149]). The claimed “wherein

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the remote control further comprises: a microphone configured to capture the input sound for transmission to the set top box via the wireless transmitter; a remote control wireless receiver configured to receive a far-end audio signal; and a remote control speaker configured to generate far-end audible output from the far-end audio signal” is not explicitly disclosed in the remote control of DeWeese et al. However, the August et al reference specifically teaches the claimed “system of claim 15, wherein the remote control further comprises: a microphone configured to capture the input sound for transmission to the set top box via the wireless transmitter” as met by microphone 122, which is eventually transmitted over RF link to base station 20 or set-top box 32 (col. 5, lines 7-20 and col. 9, line 28 – col. 10, line 5). The claimed “remote control wireless receiver configured to receive a far-end audio signal” is also met by the antenna 119 and duplexer 117 of handset unit 10, for receiving audio signals from the base unit 20 or set-top box 32 and sending the signals to the radio receiver 114 and outputting the audio to the speaker 121 (col. 5, lines 7-20 and col. 9, line 28 – col. 10, line 5). The claimed “remote control speaker configured to generate far-end audible output from the far-end audio signal” is, again, met by the speaker 121 for outputting audio signals received by the base unit 20 or set-top box 32 (col. 5, lines 7-20 and col. 9, line 28 – col. 10, line 5). Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have combined the two-way videoconferencing system using an interactive television system of DeWeese et al with the additional teachings of August for the advantages of providing the specific teachings regarding the use of a remote control including a microphone and speaker for use with transmitting and receiving various audio signals. One of ordinary skill in the art would have been led to make such as modification since wireless remote controls including the use of a microphone and a

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speaker, as described above, are well known in the art of audio or teleconferencing and video conferencing systems.

Regarding claim 23, the claimed “system of claim 22, wherein the remote control speaker and the microphone are further configured to operate simultaneously to provide two-way audio communication with the far-end user via the interactive television system” is met by the August reference, as described above in combination with DeWeese, where the transmitter 113 and receiver 114 of Figure 2 both operate simultaneously over antenna 119 (col. 5, lines 7-20).

Regarding claim 24, the claimed “system of claim 23, wherein the system further comprises a second speaker for generating television sound” is met by the fact that the television display device 60 contains a speaker to output audio relating to the program (see ¶ [0105] of DeWeese and col. 3, lines 13-25 of August).

Regarding claim 25, the claimed “system of claim 24, wherein the set top box comprises a broadband communication component configured to initiate communication with the far-end user via a second interactive television system” is met by the DeWeese reference, which discloses the use of a audiovisual telecommunications system including a broadband communication network for transmitting conversations between different locations using interactive television systems (see ¶’s [0102]-[0105]).

Regarding claim 26, the claimed “system of claim 24, wherein the set top box comprises an Internet communication component configured to initiate communication with the far-end user via the Internet” is met by the DeWeese et al reference where the Internet may be used as a part of the system (see ¶’s [0071] and [0084]).

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Regarding claim 27, the claimed “system of claim 24, wherein the set top box comprises a telephone network component configured to initiate communication with the far-end user via a telephone network” is met by the DeWeese et al reference where a telephone network may be used as part of the communications network (see ¶’s [0051] and [0071]).

As to claims 41-45, see the above rejections to similar claims 15-16, 18-20 and 22-24, including details of the noise cancellation.

Regarding claim 51, see the above rejection to similar claims 15-16, 18-20 and 22-24, including details of the noise cancellation.

Regarding claim 53, see the above rejection to similar claims 15-16, 18-20 and 22-24, including details of the noise cancellation.

Regarding claim 55, see the above rejection to similar claims 15-16, 18-20 and 22-24, including details of the noise cancellation.

Regarding claim 57, see the above rejection to similar claims 15-16, 18-20 and 22-24, including details of the noise cancellation.

8. Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over DeWeese et al, in view of Hughes, in further view of August et al.

Regarding claim 46, see the above rejection to similar claims 15-16 and 18-24, including details of the noise cancellation.

Conclusion

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Applicants' amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael W. Hoye whose telephone number is **571-272-7346**. The examiner can normally be reached on Monday to Friday from 8:30 AM to 5 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller, can be reached at **571-272-7353**.

Any response to this action should be mailed to:

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Effective January 14, 2005, except correspondence for Maintenance Fee payments, Deposit Account Replenishments (see 1.25(c)(4)), and Licensing and Review (see 37 CFR 5.1(c) and 5.2(c)), please address correspondence to be delivered by other delivery services (Federal Express (Fed Ex), UPS, DHL, Laser, Action, Purolater, etc.) as follows:

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Michael W. Hoye
November 7, 2006


JOHN MILLER
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